



Defense Contract Management Co

UNIT COST MANAGEMENT

ACTIVITY BASED COST MANAGEMENT

**New Commanders'
Orientation**

March 2000



Unit Cost Data Analysis

- Why are we doing this?
- Where do you start?
- How should you analyze the data?
- What tools are available?
- What kinds of things should you look for?
- What corrective actions should you take?
- What recommendations could you make based on your findings?
- Where are we going?





Why are we doing this

- It was determined that it made good business “sense” to add a cost “dimension” to our performance measurement
- The objective is to manage DCMC like you would a commercial business - to do this we need to understand our cost



First, some information on the unit cost structure.....





CAO Unit Cost Equation

If it's in your budget, it's in your unit cost

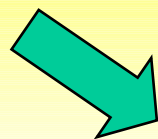
\$ Cost
Units



Benefi
Award
Trainin
Sala
ry
Travel
Supplie
Communica
t
Overtim
Rent
ISS
A
e

If it's centrally funded but obligated against your organization, it's in your unit cost

= Cost Per Unit



CMM
MUM
M
Early CAS
PAS
DLH
ODLH
IASO
Requests

strict and DCMC Headquarters costs are NOT in your unit cost



Unit Cost Pool Structure

Cost Pools

- 01 - Basic CAS
- 02 - Pre-Contract Activities
- 03 - Mandatory Product Audits (deleted 1 Oct 99)
- 04 - Contractor System Reviews
- 05 - Contingency CAS
- 06 - General Management:
 - Service Support
 - Organization Support & Mgt
- 07 - NASA, FCAS, & Other

Contract Kinds

Supply
BOA/IDIQ
Unpriced Orders
Undefinitized Letter
Contracts
Maintenance
Facilities
Service
System Acquisition
Research & Development
Subcontract/Delegations
Not Contract Kind Specific

... For PLAS Reporting purposes



Basic CAS Units- CMM/MUMM

CMM - Contracts Managed Per Month
MUMM = \$Millions of ULO Managed Per Month

- **CMM - variation on contracts on hand**
... adjusted for contracts that should have/have been closed
- **Output measure is the “work performed each month to manage a contract”**
- **Examples:**
 - One contract active the entire year, annual CMM will be 12
 - A \$1 Mil ULO contract open 6 years, annual MUMM will be 12.0
 - A \$250,000 ULO contract open 1 month, annual workcount will be .25

CMM & MUMM

KOH/ULO Start of Month + Receipts During Month = CMM/MUMM

CMM for Supply, Facility, BOA, Maintenance, Service, Undefinitized, Unpriced Orders
MUMM for System Acquisition and R&D (as of Oct 99 Report)



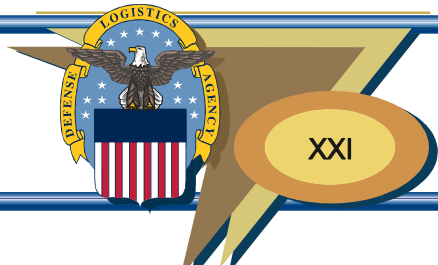
MOCAS CMM/MUMM Filters

Drop Record if:

- Not CAR Section = 1, Parts A & B
- Contract received date is blank
- Contract receive date is greater than delivery date.
- Contract receive date is after the current month
- ULO = \$ 0 and not ODO and kind code not BOA
- CAR R8 remarks include "Production Complete"
- 6 months or more past final delivery date (FDD)
- FDD field is blank: Re-compute as Received Date +
12-60 Months, depending on Contract Kind

Also,

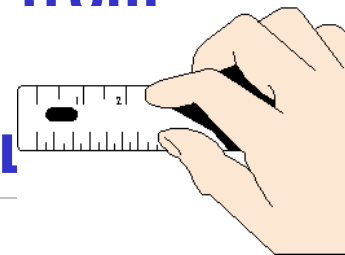
- If ULO is negative, set it to zero.



Other Cost Pools - Units

Developing valid output measures has been the most problematic part

- **Precontract Activities = # Requests for Advice**
- (Preaward Survey + Early CAS + Industrial Assessments)
- **Mandatory Product Audits = Direct Labor Hours (DLH) Deleted as of Oct 99 Report**
- **Contractor Systems Reviews = Direct Labor Hours (DLH)**
- **Contingency CAS = Direct Labor Hours (DLH)**
- **General Management = Direct Labor Hours from other Unit Cost Pools listed above (ODLH)**
- **Reimbursable Pool = Direct Labor Hours (DLH)**





DATA INTEGRITY

What Happens When:

- **Unit Counts/No or Low Hours**

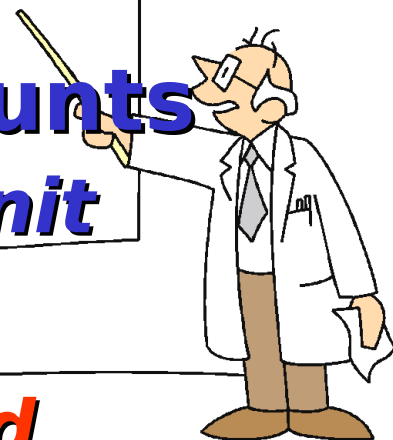
... understated or no Unit Cost

- **Hours/No or Low Unit Counts**

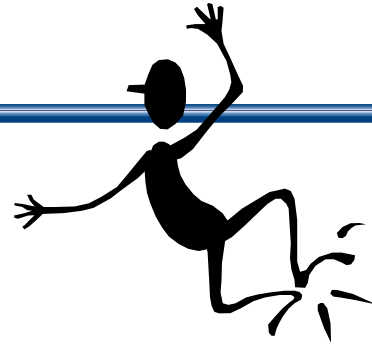
... overstated or no Unit

Cost

Either way, data is skewed



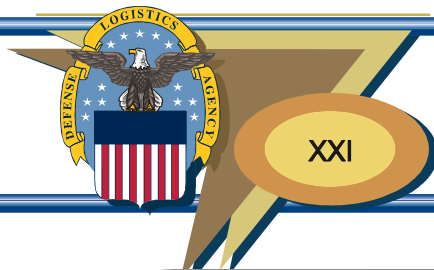
Goal is not to force “average costs” on every activity.



DCMC “Some Plant”

Do You Know How You Are Doing?





First, take a look at the FMR data

- Cost Per Unit Variance**

How far from CAO-type average cost per unit?

- Process Profile Variance**

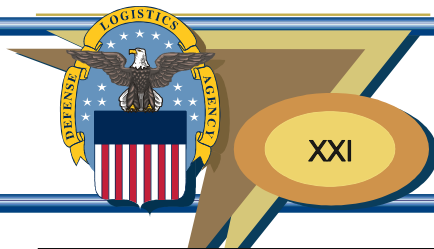
Extent to which processes charged differ from other CAOs of same type.

- Unit Cost - Rate of Change**

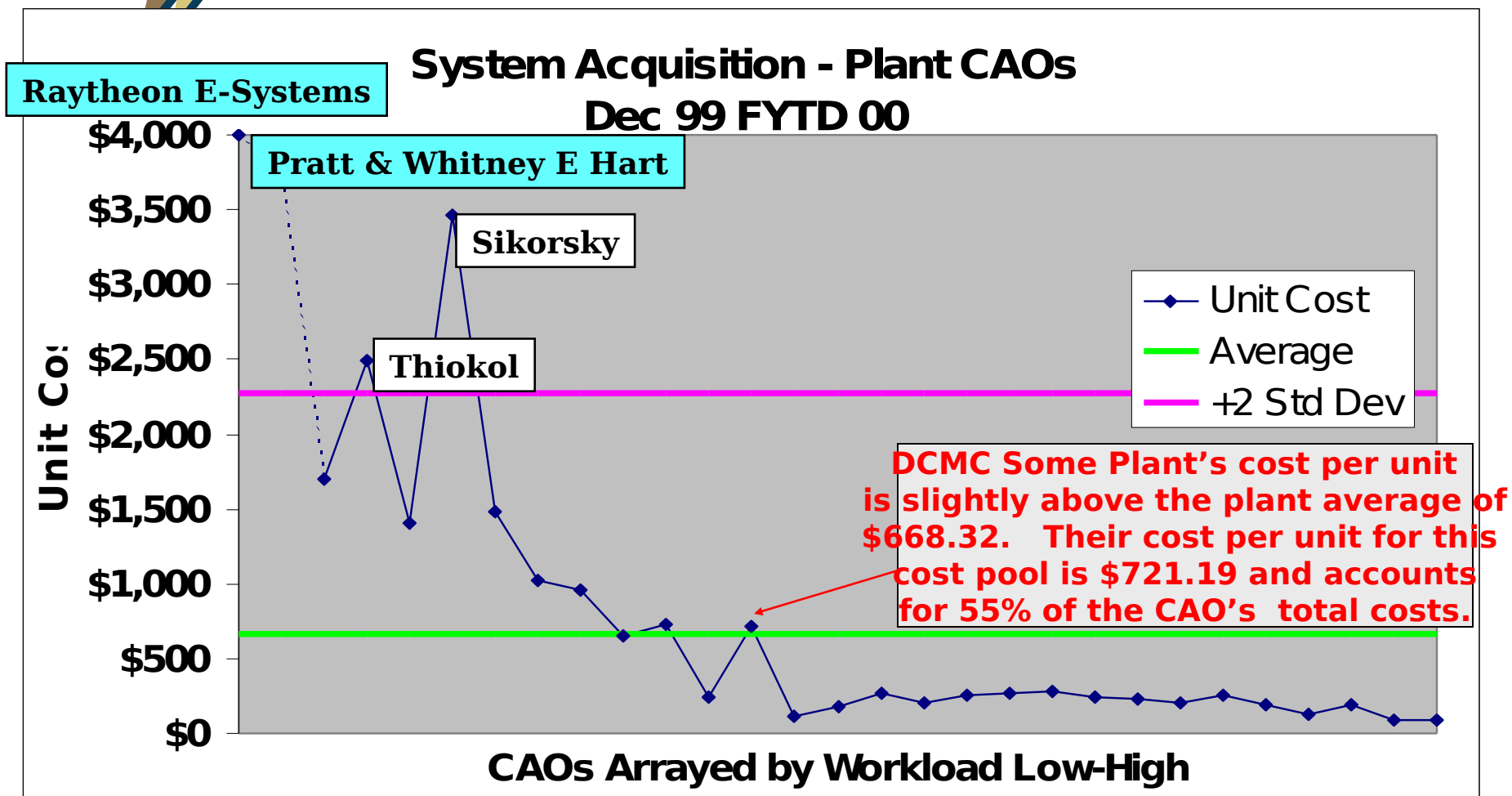
What is the CAO's percent change in cost per unit from the prior FY baseline?

- Master Index - How different are the CAO's Unit Costs in each pool?**

Basic CAS - System Acquisition									
Geographic Offices									
	Process Profile Variance	Unit Cost Rate of Change	Cost Per Unit Variance	Master Index		Process Profile Variance	Unit Cost Rate of Change	Cost Per Unit Variance	Master Index
Americas					Pacific	1			1
Atlanta					Philadelphia		1	1	
Baltimore				-1	Phoenix				-1
Birmingham	1	-1			Pittsburg	2			
Boston	1	1			San Antonio		1		
Chicago		2			San Diego				
Clearwater		-1			San Francisco		1	2	
Cleveland		2	2	-1	Santa Ana				
Dallas					Saudi Arabia	2			2
Dayton	1				Seattle				
Denver					Southern Europe				2
Detroit					Springfield	1			
Hartford		2	2		St. Louis				
Indianapolis					Syracuse				
Long Island		-1			Twin Cities	1			
New York		-1		1	Van Nuys				
Northern Europe				1	Wichita				
Orlando									
* < 2% of CAOs Hours in this Pool					2	> +/- 2 Std Dev		1	> +/- 1 Std Dev



Cost / Unit - Sys Acq / R&D



Excluded from Avg & Std Dev Calc: Pratt & Whit E Hartford, Raytheon E-Systems



Process Profile - Syst Acq / R&D

1st Quarter FYTD00 Data

PROs Avg= 0.7974 StdDev = 0 **+/- 2 Std Dev** **+/- Std Dev** **<2% CAO Hours**

Raytheon E-Systems	2.0539	Raytheon	0.7275	Northrop Grumman Melb	0.5964
Pratt & Whitney E Hart	1.7536	Stewart & Stevenson	0.7171	Lockheed Owego	0.5883
Boeing Canoga Park	1.3316	Northrop Grumman Balt	0.7050	Lockheed Del Val	0.5717
Thiokol	1.2012	Boeing Heli Phila	0.7023	Northrop Grumman El Segundo	0.5645
Northrop Grumman St Aug	1.1517	Sikorsky	0.6824	Lock. Mart. Miss. & Space	0.5526
Raytheon LA	0.9512	Bell Heli Textron Ft Wth	0.6530	Raytheon Tucson	0.5369
GE Lynn	0.9484	Northrop Grumman Beth	0.6471	Lock. Mart. Ft Worth	0.5129
GEAE Cincinnati	0.9040	Boeing Seattle	0.6415	Lockheed Orlando	0.4741
Pratt & Whitney W. Palm	0.8733	Boeing Long Beach	0.6227	Boeing St. Louis	0.4424
Boeing Huntington Beach	0.8291	Lock. Mart. Astro. Denver	0.6171	DCMC Some Plant	0.3673

Based on PLAS Process Code Distribution; Excludes Travel & Train



Rate of Change - Sys Ac

System Acquisition - Plant CAOs Unit Cost Percent Change FY99 - FYTD00

CAO	Work Units	Change %
Northrop Grumman St Aug	0.00	NA
Raytheon E-Systems	1.46	1299.55%
Pratt & Whitney E Hart	1.75	204.63%
Boeing Canoga Park	13.61	163.83%
Thiokol	21.41	-17.68%
Pratt & Whitney W. Palm	136.36	427.68%
Sikorsky	161.22	506.58%
Raytheon LA	230.61	60.12%
GEAE Cincinnati	259.63	8.04%
Northrop Grumman Balt	273.71	-8.10%
Lockheed Owego	476.54	27.64%
Bell Heli Textron Ft Wth	756.49	-31.05%
Stewart & Stevenson	1,047.75	-41.61%
DCMC Some Plant	109.10	60.24%
Boeing Huntington Beach	1,612.01	-57.97%

CAO	Work Units	Change %
GE Lynn	2,003.21	-19.06%
Northrop Grumman Beth	2,100.75	-14.10%
Northrop Grumman El Segundo	2,761.69	-96.24%
Boeing Heli Phila	3,016.65	39.98%
Lockheed Del Val	3,060.95	-15.47%
Lock. Mart. Miss. & Space	3,076.68	-15.97%
Lock. Mart. Astro. Denver	3,577.66	15.51%
Lock. Mart. Ft Worth	3,718.92	-29.93%
Raytheon	3,891.90	0.55%
Boeing Seattle	4,296.54	41.48%
Northrop Grumman Melb	4,338.64	-25.65%
Lockheed Orlando	4,375.01	-85.59%
Raytheon Tucson	5,441.56	-37.78%
Boeing Long Beach	12,567.99	33.45%
Boeing St. Louis	18,862.78	-24.06%



Relatively speaking, how costly are you

The “Master Index”

... The sum of cost variance in each pool calculated by subtracting a standard cost (DCMC Unit Cost x CAO's workload) from the CAO's actual Cost (CAO's Unit Cost x CAO's workload). The difference is expressed as a percentage of the standard cost.

- *One number tells how different CAO is from*

- DCMC Unit Cost*

- *Simpler, more intuitive calculations*

- *Measures differences both above &*

below norm

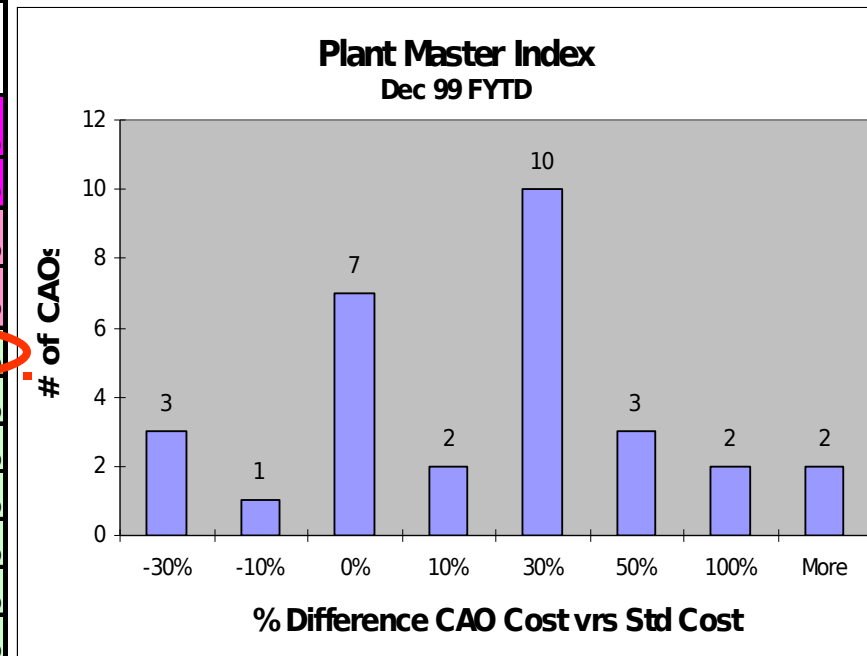
So how is DCMC Some Plant doing? →

- *Can 'drill down' into meaningful pool*



Master Index - Plant CAOs

Plant CAOs	Master Index
Raytheon E-Systems	119.41%
Raytheon LA	110.36%
GEAE Cincinnati	73.91%
Lockheed Oweron	66.50%
DCMC Some Plant	32.07%
Thiokol	30.84%
Stewart & Stevenson	30.57%
Lock. Mart. Miss. & Space	29.64%
Northrop Grumman Balt	23.67%
Northrop Grumman Beth	23.44%
Lockheed Del Val	22.54%
GE Lynn	18.53%
Lock. Mart. Astro. Denver	18.09%
Boeing Seattle	18.07%
Boeing Canoga Park	17.07%



Average	16.54%
Std Dev	37.03%

Plant CAOs	Master Index
Northrop Grumman El Seg.	14.63%
Raytheon	12.76%
Raytheon Tucson	6.88%
Pratt & Whitney E Hart	2.91%
Boeing Huntington Beach	-1.25%
Northrop Grumman St Aug	-1.61%
Pratt & Whitney W. Palm	-4.13%
Lock. Mart. Ft Worth	-4.64%
Sikorsky	-7.12%
Northrop Grumman Melb	-8.08%
Boeing Heli Phila	-9.30%
Lockheed Orlando	-12.53%
Bell Heli Textron Ft Wth	-38.92%
Boeing Long Beach	-44.20%
Boeing St. Louis	-44.44%

What does it mean?

On average, DCMC Some Plant is nearly 33% more expensive than the rest of the DCMC Plant Offices for the work it performs



DCMC Some Plant Master Inc

DCMC Some Plant Master Index 1 QTR FY 00	DCMC Plant Unit Cost	Some Plant Unit Cost	Some Plant Units	Some Plant Tot Pool Cost	Some Plant Std Pool Cost	Some Plant Cost Variance
Sys Acq / R&D	\$198.94	\$721.19	1,109.10	\$799,869	\$220,644	\$579,224
Maint & Facil	\$641.27	\$810.86	67	\$54,327	\$42,965	\$11,362
Service Cts	\$264.94	\$195.03	244	\$47,588	\$64,645	-\$17,057
Supply	\$113.58	\$53.08	2,940	\$156,052	\$333,925	-\$177,873
Subs & Dels	\$51.47	\$54.61	147	\$8,001	\$7,540	\$460
Precontr	\$844.60	\$948.79	5	\$4,744	\$4,223	\$521
SysRevws	\$45.17	\$45.91	360	\$16,526	\$16,261	\$265
CCAS	\$59.28	NA	0	\$461	\$0	\$461
Service Supt	\$10.12	\$7.40	23,901	\$176,965	\$241,878	-\$64,913
Org Supt	\$6.84	\$7.93	23,901	\$189,421	\$163,483	\$25,938
Reimburs	\$43.05	\$44.97	38	\$1,709	\$1,636	\$73
TOTAL COST				\$1,455,661	\$1,097,201	\$358,460
Master Index						32.67%

....What's driving the Index values?

- ✓Sys Acq and R&D contracts
- ✓Organization Support



Process Profile - Sys Acq and R&D

Contract Kinds

How am I different?

Thought Process:

Total Hours	Plant Offices	% of Base	DCMC Some Plant	% of Base
	111,538.00	100.00%	5,464.00	100.00%
085 - Supplier Quality Assurance - (New)	25,098.00	22.50%	1,315.00	24.07%
031A - Contract Receipt and Review - (New)	15,996.00	14.34%	403	7.38%
038 - Program Integration	11,963.00	10.73%	540	9.88%
069 - Systems Planning, Research, Development Engineeri	10,614.00	9.52%	526	9.63%
041 - Pricing & Negotiation	7,218.00	6.47%	135	2.47%
071 - Software Contract Administration Services	6,105.00	5.47%	354	6.48%
086 - Schedule & Delivery Management - (New)	5,589.00	5.01%	82	1.50%
062 - Configuration Management	5,142.00	4.61%	246	4.50%
064 - Flight Operations	4,924.00	4.41%	732	13.40%
199 - Common Basic CAS	4,375.00	3.92%	283	5.18%
070 - Earned Value Management (Contractor Perform Msm	3,777.00	3.39%	164	3.00%
181 - Contract Closeout	3,006.00	2.70%	18	0.33%
074 - Test and Evaluation Management	1,836.00	1.65%	301	5.51%
066 - Deficiency Reports (DRs)	1,361.00	1.22%	106	1.94%
082 - Process Corrective Action	1,323.00	1.19%	175	3.20%
105 - Plant Clearance	1,086.00	0.97%	0	0.00%

This is OK

Why is this so low?

Do I need to do more?

This is OK

This seems excessive!

Why would this be so h

Outcomes:

- Mis-charging?
- Excess resources?
- Maybe both!

Green = 80% Processes; Blue = 90% Processes; Yellow = Different Pattern



Process Profile - Organizational Support

How am I different?

	Plant Offices	% of Base	DCMC Some Plant	% of Base	
Total Hours	32,357.00	100.00%	1,024.00	100.00%	<u>Thought Process:</u>
211 - Operational Support Services	15,485.00	47.86%	504	49.22%	This is OK
191 - Plans and Policy Deployment (Non-P	9,162.00	28.32%	393	38.38%	This seems too high!
221 - Resourcing and Budgeting	3,325.00	10.28%	36	3.52%	Is this enough?
500 - Other Activity/Effort (Non-Process S	2,639.00	8.16%	49	4.79%	This is
214 - Labor Relations	1,569.00	4.85%	42	4.10%	OK
194 - Command Information & Image	121	0.37%	0	0.00%	
196 - Other Legal Support (Non-Proc.Spec	56	0.17%	0	0.00%	

Outcomes:

- Mis-charging?
- Excess resources?
- Maybe both!

Green = 80% Processes; Blue = 90% Processes; Yellow = Different Pattern

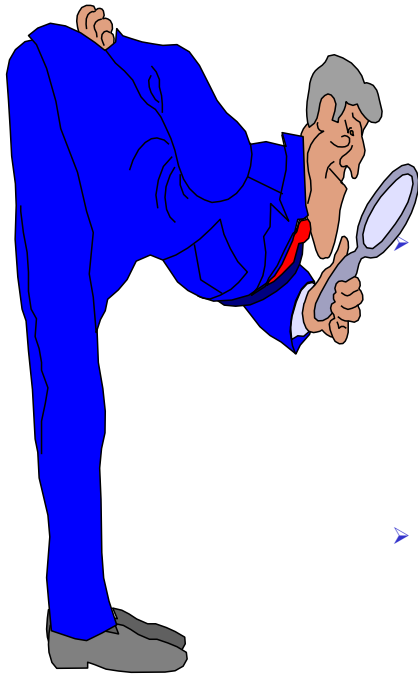


Data Accuracy and Consistency

- **Monitor/Correct**
 - **PLAS Reporting**
 - **Workload Data**
 - **Metrics Data**
 - **Reimbursables Information**

Review the profiles

- **Contract Kinds: From MOCAS and PLAS**
- **Processes/Programs: The cost drivers**
- **Do the profiles make sense for your business?**
 - **How do they look and feel?**
 - **Compare with peer organizations**
 - **Peel back questionable areas to find out why**





Trouble Spots

- **Consistent reporting against one or two codes**
- **Repeated copying from the previous day**
- **Reporting “activities” rather than processes**
- **Reporting to the “not contract kind specific” category excessively/exclusively**
- **Reporting as a “contract kind” when working on a subcontract or delegation**
- **Making uninformed decisions for expediency**
- **Workload Reporting Quality (MOCAS, SICM, AMS, PLAS, Reimbursables)**



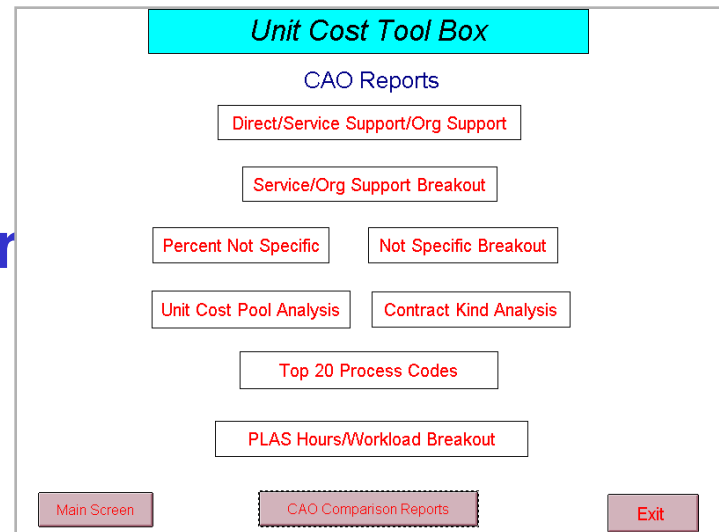
What Resources are Available

- Your Unit Cost and PLAS Administration
- UCM and PLAS Home Page
- UCM Guidebook
- Command and CAO specific UCM C
- UCM Toolbox (portfolio)
- FMR Charts
- UCM Site Visits
- HQ/District UCM Mgrs
and UCM team members
- DIRAMS/MOCAS Reports
- PLAS Help

A Guidebook to DCMC's Unit Cost Management System



May 20, 1999
rev. 2





Long Term

***temptation to simply focus on short term at the expense
of long term goals***

**The big payoff in UCM is in the
long term insights into costs and the
ability to improve financial
and performance planning.**



Long Term Focus at CAO

- **Use unit cost as a tool to price out/develop performance plan**
 - What processes will be targeting for improvement, reduction, increase in focus and how will it be accomplished?
 - What are my workload trends?
 - What will the impact be on my unit costs?
 - What can be included in my plan to remain competitive and improve cost effectiveness?
- **Build the efficiencies into the plan**
- **Execute the plan on your unit cost targets**



So How Do I Know If My Unit Cost is OK

Ask yourself 4 questions

- Is the data accurate?
- Is the data consistent?
- Is the bottom line appropriate?
- What action can I take to make improvements?





Where are we going?

- **Activity Based Cost Management**
- **We are developing cost to the activity level**
 - **85% of DCMC's cost is labor so with our PLAS system we are well on our way of having cost at the activity level**
- **Headquarters Process Owners and CAOs can analyze an activity's cost**
 - **PLAS allows the analysis at the "task" level - one step below the process/activity level**